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# THE MONTANA ROUNDUP OF INDUSTRIAL HEALTH & SAFETY

Montana State Board of Health
B. K. Kilbourne, M.D., Executive Officer

Division of Industrial Hygiene
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## OCCUPATIONAL DISEASE

In the past six months, there have been three occupational diseases reported to the State Board of Health. Two of these cases were discovered by the Industrial Hygiene Division before the occupational health injury became disabling. In each case, the injured person was able to continue work when removed from the toxic exposure and with continued medical treatment is regaining, to some extent, the health that was impaired through working in an environment of high fume or dust concentration.

The other case was not discovered by the division; in fact, it was discovered only when the poisoning had reached the chronic disabling stage and it was necessary to hospitalize the patient for about a month.

Not one of these cases of occupational disease need have occurred. The working environment in each instance had been surveyed by the Industrial Hygiene Department and appropriate recommendations had been made but corrective action had not been accomplished.

It has been amply proved that occupational diseases are preventable, and that just two factors are necessary to prevent them: (1) Provide adequate protective measures for the control or elimination of toxic concentrations of materials. (2) Constant and intelligent cooperation of employees in using the protective devices and measures provided.

Recognition, evaluation and recommendations for adequate control of all toxic concentrations of materials can be provided by Industrial Hygiene engineers, either the plant's own department, or engineers in the State's Industrial Hygiene Department will make these evaluations for you.

Most industrial establishments carry insurance so that an employee suffering an accidental injury on the job will receive some compensation for his time away from the job. Occupational health injuries here are not in general classified under this plan, they are not interpreted to be accidents. Using that interpretation then, an industrial establishment which has been shown by a survey that occupational health hazards exist and does nothing to correct them could be considered to be intentionally creating health injuries through their negligence.

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CAUTION WITH SOLVENTS SAVES MONEY AS WELL AS LIVES

Organic solvents, which are among the most widely used industrial chemicals, can be dangerous to health unless workmen are protected from inhalation of the solvent vapors and prolonged skin contact with the liquids. The control of these hazards, in addition to its humanitarian value, pays sizable dividends in dollars and cents.

Loss of solvent is avoided by controls which are designed primarily to protect health through minimizing the evaporation of volatile liquids. One of the chlorinated solvents, for instance, evaporates at the rate of about 1/4-gallon a day per square foot of liquid surface exposed to a room temperature of about 70° F. When solvents are handled in closed systems, isolated from the workroom atmosphere, losses of this kind are wiped out while health protection is assured. If it is necessary to use solvents in the open, specially designed work procedures and operating equipment will prevent vapors from escaping into the air, simultaneously preventing illness among workers and conserving valuable chemicals.

Poor control of organic solvents can result in a variety of health disorders. These chemicals are a frequent cause of dermatitis, one of the most common industrial diseases and one of the most economically serious. Skin disorders mean decreased efficiency, loss of man-hours and frequent visits to the medical department, sometimes over a long period.

Even moderate exposure to solvent vapors over a period of time may cause nervousness, irritability, excitability, dizziness, weakness, depression, lethargy, defects in vision, and impairment of the powers of judgment and coordination. These effects may contribute to excessive absenteeism and rapid labor turnover. Under some circumstances, mass hysteria may develop. Costly errors and accidents, seemingly due to carelessness, can sometimes be traced to solvent-vapor intoxication. Even when vapors are only sufficiently strong to cause discomfort, productivity may decrease and plant morale deteriorate.

Partial or total disability, due to disorders of the liver, kidneys, blood, or nervous system, may result from prolonged or repeated exposures to excessive amounts of vapor. Every such case of systemic illness means a serious loss of time and money.

An adequate solvent safety program, in addition to being an important factor in decreasing solvent loss, increasing efficiency, and improving labor relations, diminishes compensation payments and helps out the cost of compensation insurance. Plant records indicating that workroom air has been analyzed regularly for solvent vapors and that solvent workers have received periodic medical check-ups may prove to be useful weapons against ill-advised demands for compensation for occupational injuries.

A bad history of solvent accidents injures a plant's reputation and can harm an entire industry. An unfortunate series of accidents with a single solvent may discredit a valuable industrial chemical and decrease the demand for it.

Factors of this kind, despite the difficulty in ascertaining their exact dollar value, may spell the difference between profit and loss in a solvent-using operation. (Safety Research Institute).

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## ANALBIS SUPPOSITORIES

The Food and Drug Division of the State Board of Health has just completed a survey of the State of Montana in cooperation with the State Board of Pharmacy, the Federal Food and Drug Administration, and local health officials in an effort to see that all Analbis Suppositories in the state were returned to the manufacturer.

These suppositories contained the Bismuth salt of heptadiene carboxylic acid. They were made in adult and Children's sizes, each with a label of a distinctive color. The adult size contains twice the amount of bismuth contained in the children's. The suppositories were recommended for physicians' use in the treatment of infections of the throat and mouth, and specifically for use before and after tonsillectomies. The first reports of the toxicity of this product were brought to the attention of the Federal Food and Drug Administration from Dallas, Texas, in December 1946. A prompt investigation of this report failed to incriminate the drug. Other reports followed concerning the deaths of children in cases where these suppositories had been used.

In February, the manufacturer agreed to recall all stocks. Export shipments were also stopped. Upon being informed of this action, the Food and Drug Division immediately wrote to all doctors within the state requesting the return of all professional samples, and local health officers were asked to contact all drug stores within their areas to determine the presence in stock of Analbis Suppositories. The State Board of Pharmacy was requested to contact all druggists, asking that any stocks on hand be immediately returned to the manufacturer.

At the present time, it is believed that all stocks of this drug on hand in the State of Montana has been returned to the manufacturer.

The response to our questionnaire for information was very gratifying and we appreciate the support given us by local health officers, the State Board of Pharmacy, and medical practitioners throughout the state.--Elton M. Andrew, Director, Food and Drug Division.

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## ROCKY MOUNTAIN SPOTTED FEVER

There exists in Montana three tick-bourne diseases, spotted fever, tularemia and tick paralysis. Rocky Mountain Spotted Fever is the most important of these three because of its more frequent occurrence, its severity, its average high death rate and the usual prolonged period of convalescence.

Rocky Mountain Spotted Fever, so called because of its first discovery in the Rocky Mountain Region and because of the characteristic eruption which commonly appears between the third and fifth day of fever, is an acute, specific, infectious but non-contagious rickettsial disease, transmitted by the bite of an infected tick. It is characterized clinically by an onset with a chill and continuous, moderately high fever (103° to 107°F), severe arthritic and muscular pains and a profuse eruption ap-

pearing first on ankles, wrists and back, but rapidly spreading to all parts of the body.

This disease was first noted in the Snake River Valley of Idaho in 1893, and in the Bitter Root Valley in Montana in 1890, where it was commonly attributed to drinking snow water or snow water which had flowed through decomposing sawdust. However, by 1902 the wood tick was suspected by many of the native inhabitants as having a causal relation to the disease and, in 1906, Ricketts began a careful scientific study of Rocky Mountain Spotted Fever and soon demonstrated and announced that the causative agent was transmitted to susceptible animals by the bite of infected wood ticks.

Prior to 1930, the disease was believed to be confined definitely to states west of the Mississippi but now its geographical limits have been greatly extended in the Central and Eastern states. In 1937, thirty-one states reported cases, Maryland, Virginia and North Carolina showing the greatest number of cases. In Montana, 107 cases were reported in 1941 with nineteen deaths, a mortality rate of 17.7 per cent. In 1946, only seven cases were reported with five deaths, a mortality rate of 71 per cent. The mortality rate for the whole United States is placed at about 23 per cent.

There are two ticks mainly responsible for the transmission of this disease. These are the common wood tick, Dermacentor Andersoni, and the American dog tick, Dermacentor variabilis. The latter tick is found in only a few of the northeastern and southeastern counties of Montana, but is the active responsible tick in Eastern United States.

Rocky Mountain Spotted Fever is rather seasonal in nature since the ticks feed actively only during the first warm days of spring to early summer, although at high altitudes they may feed during the summer months. The common wood tick, D. andersoni, is a three host tick, that is, the tick in its larval and nymphal stages drops off its host after engorgement and, after moulting, reattaches itself to another host. As with other ticks, blood is the only food known to be consumed. Three full blood meals are required by these ticks in order that they may complete their life cycle, from larvae into nymphs, the nymphs into adults and for the fertilization and egg-laying of adult females. The average time required by this species for completing its life cycle is two years. Small rodents serve as hosts for the larvae and nymphs. These later infect some fifteen species of small wild animals. Included among these wild animals are ground squirrels, pine squirrels, chipmunks, wood rats, woodchucks, jack rabbits, cotton-tail rabbits, snowshoe rabbits, prairie dogs, field mice and deer mice.

The adult tick stage feeds upon large wild and domestic animals such as horses, sheep, cattle, goats and deer. Man is only incidental. Fortunately, it does not follow that all ticks capable of transmitting the disease are infected. In fact, the percentage of infected ticks in nature seldom is greater than 2 per cent and commonly less than 1 per cent.

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The greatest number of cases occur in persons engaged in outdoor occupations and which take them into tick infected areas. The incubation period is usually from 3-14 days, the characteristic rash appearing usually about the fifth day of the fever.

Prevention of Spotted Fever may be largely achieved by:

1. Avoidance of tick-bites by avoiding visiting infective localities unless necessary, and by the wearing of heavy, protective clothing when exposure cannot be avoided.

2. Removal early of ticks from clothing and those which may have become attached to the body. In the latter case, it is best to remove the tick immediately after discovery by gently pulling with the fingers, rather than waiting for hours until a physician can be reached. Every added minute of attachment increases the danger of transmission of spotted fever or other tick-bourne disease.

3. Protective Vaccination. A very satisfactory vaccine has been prepared and may be secured free of charge from the Rocky Mountain Laboratory at Hamilton by any licensed physician. The great decrease in the incidence and mortality of Spotted Fever in Montana is largely attributed to the extensive vaccination programs carried out in those areas of greatest incidence.

Treatment of Rocky Mountain Spotted Fever until of very recent date has been symptomatic in nature. Recently, a favorable report has been published concerning the use of para-aminobensoic acid in the treatment of this disease and it is greatly to be hoped that further use of this drug will confirm these primary findings and that Rocky Mountain Spotted Fever may be placed on the list of diseases that man has conquered through long years of study and research.--Edith Kuhns, Director, Hygienic Laboratory.

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